

## REMARKS

### Amendments to the claims

The language of claims 1, 16, 48, 49, 54 and 55 has been amended to recite that the membrane "*includes no aromatic polymer comprising thioether*". These amendments are derived from the specification, which shows that no aromatic polymer comprising thioether is used during the making of the membrane.

Claims 14, 32, 50-53 and 56-58 have been cancelled without prejudice, and the Applicants expressly reserve the right to prosecute the subject matter of the cancelled claim in this application or in any derivative thereof.

No new matter has been added.

### Rejection under 35 U.S.C. 112

Claim 14 stands rejected under 35 U.S.C. 112 as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention. Claim 14 has been cancelled without prejudice.

### Rejection under 35 U.S.C. 103

Claims 1-14, 31-32, 47-48, 50, 52, 54, 56 and 58 stand rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Pat. No. 5,273,657 to Nakashima; and claims 16, 49, 51, 53, 55 and 57 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Nakashima in view of U.S. Pat. No. 6,322,923 to Spotnitz. Applicants respectfully disagree.

Claim 1

Applicants note that Nakashima discloses a single-component membrane formed by oxidizing a membrane of an aromatic polymer having a thioether group (e.g. column 4, lines 13-19). Applicants submit that the membrane of Nakashima inherently comprises a residual proportion of the aromatic polymer comprising thioether, and submit that the presence of the aromatic polymer comprising thioether in the membrane may render the membrane unstable in a battery environment. An affidavit under 37 C.F.R. 1.132 signed by one of the Applicants is enclosed regarding the above submission. The Examiner is respectfully requested to enter and consider the affidavit.

Applicants note that claim 1 as amended recites a membrane that includes no aromatic polymer comprising thioether, and submit that claim 1 is therefore not anticipated by Nakashima. Further, Applicants note that Nakashima does not suggest that there exists a way to make a membrane as recited in claim 1, and in particular *"wherein the multi-component composite membrane comprises active layers and support layers, wherein a support layer is located between active layers, wherein the active layers have pores having a pore size and a pore distribution, wherein the support layer has pores having a different pore size and a different pore distribution, and wherein the membrane includes no aromatic polymer comprising thioether"*.

Accordingly, Applicants submit that claim 1 is patentable over Nakashima.

Claims 48 and 54

The above arguments can be used to show that Nakashima fails to disclose or suggest a rechargeable lithium battery as recited in claim 48, or a separator for batteries as recited in claim 54, and in particular comprising a membrane that *"includes no aromatic polymer comprising thioether"*. Accordingly, Applicants submit that claims 48 and 54 are patentable over Nakashima.

Claims 2-14, 31-32, 47, 50, 52, 56 and 58

Claims 14, 32, 50, 52, 56 and 58 have been cancelled without prejudice. Claims 2-13 and 47 depend directly or indirectly on claim 1. Applicants submit that at least in view of their dependency on claim 1, claims 2-13 and 47 are patentable over Nakashima.

Claim 16

Applicants note that Spotnitz discloses a battery separator that uses a porous membrane on a non-porous coating (column 1, lines 47-52), and submit that one skilled in the art would not have been motivated to replace the battery separator of Spotnitz by the membrane of Nakashima since, as seen above, the membrane of Nakashima may prove unstable in a battery environment. Further, Applicants submit that even if one skilled in the art had replaced the membrane of Spotnitz by the membrane of Nakashima, he would not have obtained a rechargeable battery as recited in claim 16, in particular comprising a multi-component composite membrane as a separator, "*wherein the membrane includes no aromatic polymer comprising thioether*". Accordingly, Applicants submit that claim 16 is patentable over Nakashima in view of Spotnitz.

Claims 49, 51, 53, 55 and 57

Claims 51, 53 and 57 have been canceled without prejudice. The above arguments can be used to show that a combination of Spotnitz and Nakashima would lead to a rechargeable lithium battery as recited in claim 49 or 55, and in particular comprising a membrane that "*includes no aromatic polymer comprising thioether*". Accordingly, Applicants submit that claims 49 and 55 are patentable over Nakashima in view of Spotnitz.

Allowable subject matter

Applicants acknowledge with gratitude the allowability of claims 17-28, 30 and 33-36.

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**Attachments:**

- Applicant's Affidavit under 37 C.F.R. 1.132
- Document cited in the affidavit
- Petition for one-month time extension
- Check for one-month time extension fee